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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/489,668	DABAK ET AL.	
	Examiner	Art Unit	
	Lawrence B Williams	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 June 2005* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-52* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11,14-26,29-34 and 37-52* is/are rejected.

7)☒ Claim(s) *12,13,27,28,35 and 36* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Response to Arguments

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claim 29 is rejected under 35 U.S.C. 102(e) as being anticipated by Miyake et al. (US Patent 6,678,341 B1).

Miyake et al. discloses in Fig. 1, a method of communicating with a remote communication circuit (18a, 18b), comprising the steps of: transmitting a first plurality of data signals to the remote communication circuit on a first sequence of respective frequencies; and receiving a second plurality of data signals from the remote communication circuit on the first sequence of respective frequencies (col. 5, lines 33-44).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ottersten et al. (US Patent 5,828,658) in view of Miyake et al. (US Patent 6,678,341 B1).

(1) With regard to claim 1, Ottersten et al. discloses in Fig. 1, a communication circuit (1), comprising: a signal processing circuit (13) arranged to produce a first plurality of data signals (11) and receive a second plurality of data signals (6,13) a transmit circuit (14) coupled to receive the first plurality of data signals on a respective transmit frequency, a receive circuit (15) coupled to receive each data signal of the second plurality of data signals from a remote transmitter (through 19a-19m) on the respective transmit frequency, the receive circuit applying the second plurality of data signals to the signal processing circuit (col. 12, lines 60-65).

Ottersten et al. does not however disclose the communication circuit comprising; the transmit circuit arranged to transmit each data signal of the first plurality of data signals on a respective transmit frequency in a predetermined sequence of transmit frequencies; or a receive circuit coupled to receive each data signal of the second plurality of data signals from a remote transmitter on the respective transmit frequency in the predetermined sequence.

However, Miyake et al. discloses in Fig. 1, a transmitter (12) transmitting on a respective transmit frequency in a predetermined sequence of transmit frequencies and a receive circuit (14) receiving from a remote transmitter (18a, 18b) on the respective transmit frequency in the predetermined sequence (col. 5, lines 32-42).

It would have been obvious to one skilled in the art at the time of invention to apply the method of Miyake et al. to the invention of Ottersten et al. as a method of providing a multi mode

communication terminal capable of terminal to terminal communication without any infrastructure equipment (col. 2, lines 9-34).

6. Claims 2, 3, 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ottersten et al. (US Patent 5,828,658) in combination with Miyake et al. (US Patent 6,678,341 B1) as applied to claim 1 above, and further in view of Acampora et al. (System Applications for Wireless Indoor Communications).

(1) With regard to claim 2, as noted above, Ottersten et al. in combination with Miyake et al. disclose all limitations of claim 1. They do not however explicitly each the communication circuit as in claim 1, wherein the remote transmitter transmit each data signal of the second plurality of data signals from a plurality of antennas. Ottersten et al. does teach that antenna arrays could be used at the remote as well.

However, Acampora et al. discloses a communication circuit wherein the remote transmitter transmit each data signal of the second plurality of data signals from a plurality of antennas (pg. 13, col. 2, lines 31-36). Acampora et al discloses that multiple antennas could be used at the remote during selection diversity.

It would have been obvious to one skilled in the art at the time of invention to incorporate the teaching of Acampora et al. with the invention of Ottersten et al. in combination with Miyake et al. as a method of implementing antenna element and selection diversity at the remote.

(2) With regard to claim 3, Acampora et al. also discloses wherein each data signal of the second plurality of data signals is multiplied by a weighting coefficient corresponding to a respective antenna of the plurality of antennas, and wherein each said weighting coefficient has a

value corresponding to a received signal strength at the respective antenna (pg. 14, col. 2, lines 12-24). Acampora et al. discloses the use of adaptive transmission, which is well known method in the art (also disclosed by applicant, pg. 8, lines 8-16). It would have been obvious to one skilled in the art at the time of invention to use the method to maximize the signal to noise ratio at the receiver.

(3) With regard to claim 4, Acampora et al. also discloses wherein each data signal of the second plurality of data signals is multiplied by a weighting coefficient corresponding to a respective antenna of the plurality of antennas, and wherein a first weighing coefficient corresponding to a first antenna of the plurality of antennas has a value of one and a second weighting coefficient corresponding to a second antenna of the plurality of antennas has a value of zero (pg. 13, col. 2, lines 9-17). Acampora et al. discloses the use of switched or selection diversity which is well known method in the art (also disclosed by applicant, pg. 8, lines 8-16.) It would have been obvious to one skilled in the art at the time of invention to use the method to maximize the signal to noise ratio at the receiver.

7. Claims 5-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ottersten et al. (US Patent 5,828,658) in view of Miyake et al. (US Patent 6,678,341 B1) as applied to claim 1, above and further in view of Haartsen (US Patent 6,590,928 B1).

(1) With regard to claim 5, as noted above, Ottersten et al. in combination with Miyake et al. disclose all limitations of claim 1, above. They do not however teach wherein the communication circuit is arranged to form a piconet with the remote transmitter.

However, Haartsen discloses in Fig. 6a, wherein a communication circuit is arranged to form a piconet with a remote transmitter.

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Haartsen with the invention of Ottersten et al. in combination with Miyake et al. to provide a method of connecting devices wirelessly and making optimal use of allocated spectrum (col. 4, lines 15-17).

(2) With regard to claim 6, Haartsen also discloses in Fig. 12, wherein the remote transmitter is a master device (1201) and wherein the communication circuit is a slave circuit (1203). Haartsen uses the master and slave configuration to organize and control communications between devices on the network.

(3) With regard to claim 7, Haartsen also discloses wherein the first plurality of data signals comprises a plurality of data bits that identify the slave device to the master (col. 13, lines 60-66). Haartsen uses the first plurality of signals as an inquiry and identification message for each device connected a particular piconet in the network (col. 12, lines 41-44).

(4) With regard to claim 8, Haartsen also discloses wherein the signal processing circuit receives the first plurality of data signals from one of a cordless phone handset, a cell phone, a personal digital assistant, a digital camera, and a computer peripheral (col. 13, lines 64-65). The first plurality of signals is used to identify each of these slave devices and its class of service.

(5) With regard to claim 9, Haartsen also discloses wherein the computer peripheral is one of a printer, a scanner, a fax machine, and another computer (col. 13, lines 64-65). It would have been obvious to one skilled in the art to incorporate the mentioned devices in the network since they are common devices in use today.

(6) With regard to claim 10, Haartsen also discloses in Fig. 6b, wherein the signal processing circuit applies the second plurality of data signals to one of a cordless phone base station, a local area network access point, a computer, and a bridge to other networks (col. 14, lines 37-52). It would have been obvious to one skilled in the art at the time of invention to use the second plurality of signals to enable master devices to permit bridge configurations.

(7) With regard to claim 11, Haartsen also discloses wherein the first plurality of data signals includes an identification signal that identifies one of the communication circuit and the remote transmitter (col. 15, lines 57-64). Haartsen use s the identification signal to determine its pseudo-random hop sequence (col. 11, lines 35-40).

8. Claims 14, 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ottersten et al. (US Patent 5,828,658) in view of Miyake et al. (US Patent 6,678,341 B1).

(1) With regard to claim 14, Ottersten et al. discloses in Fig(s). 1, and 8, a communication circuit (15), comprising a plurality of antennas (Fig. 1, 19a - 19m), coupled to receive a first data signal from a remote transmitter (col. 7, line 1) on a respective frequency and transmit (Fig. 1, elements 18a - 18m) a second data signal, a measurement circuit (described by Ottersten et al. as incorporated in the antenna; pg. 13, lines 14 - 21) coupled to receive the first data signal from the plurality of antennas, the measurement circuit arranged to measure the first data signal from each antenna and produce a respective weighting coefficient corresponding to said each antenna (col. 13, line 64 – col. 14, line 53); and a transmit circuit (Fig. 1, element 14) coupled to receive the second data signal, the transmit circuit arranged to multiply the second data signal by the respective weighting coefficient corresponding to said each antenna, thereby

producing a respective weighted second data signal corresponding to said each antenna, the transmit circuit (14, 23, 24) arranged to apply the respective weighted second data signal to the corresponding said each antenna (col. 15, lines 13-20).

Ottersten et al. does not however teach the communication circuit (15), comprising a receiving the first data signal on a respective frequency of a frequency hopping pattern and transmit a second data signal on the respective frequency.

However, Miyake et al. discloses in Fig. 1, a transmitter (12) transmitting on a respective transmit frequency in a predetermined sequence of transmit frequencies (frequency hopping pattern) and a receive circuit (14) receiving from a remote transmitter (18a, 18b) on the respective transmit frequency in the predetermined sequence (col. 5, lines 32-42).

It would have been obvious to one skilled in the art at the time of invention to apply the method of Miyake et al. to the invention of Ottersten et al. as a method of providing a multi mode communication terminal capable of terminal to terminal communication without any infrastructure equipment (col. 2, lines 9-34).

(2) With regard to claim 25 Ottersten et al. also discloses in Fig. 8, a summation circuit (21); and a receive circuit (15, 20) coupled to receive the first data signal, the receive circuit arranged to multiply the first data signal by the respective weighting coefficient corresponding to said each antenna, the receive circuit arranged to apply said each first data signal to said summation circuit (col. 13, line 55-col. 14, line 62). It would have been obvious to one skilled in the art to use the configuration as noted above to maximize a signal to noise ratio at the receiver.

9. Claims 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ottersten et al. (US Patent 5,828,658) in combination with Miyake et al. (US Patent 6,678,341 B1) as applied to claim 14 above, and further in view of Acampora et al. (System Applications for Wireless Indoor Communications).

(1) With regard to claim 15, Ottersten et al. in combination with Miyake et al. disclose all limitations of claim 14. They do not however explicitly teach wherein the respective weighting coefficient corresponding to said each antenna has a value corresponding to a received signal strength of the first data signal at said each antenna.

However, Acampora et al. discloses wherein the respective weighting coefficient corresponding to said each antenna has a value corresponding to a received signal strength of the first data signal at said each antenna (pg. 14, col. 2, lines 12-24). It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Acampora et al. Ottersten et al. in combination with Miyake et al. as a well known method in the art (also disclosed by applicant, pg. 8, lines 8-16) to maximize a signal to noise ratio at the receiver.

(2) With regard to claim 16, Acampora et al. also discloses wherein a first weighting coefficient corresponding to a first antenna of the plurality of antennas has a value of one and a second weighting coefficient corresponding to a second antenna of the plurality of antennas has a value of zero (pg. 13, col. 2, lines 9-17). Acampora et al. discloses the use of switched or selection diversity which is well known method in the art (also disclosed by applicant, pg. 8, lines 8-16.) Acampora et al. discloses the method to maximize the signal to noise ratio at the receiver.

(3) With regard to claim 17, though Acampora et al. does not explicitly disclose wherein the plurality of antennas are spaced apart by at least 2 centimeters and by no more than 15

centimeters, he does teach that with appropriately space antennas there is less probability of all multiple antennas all in a fade (pg. 13, col. 2, lines 2-8). It would be a design choice for one skilled in the art to choose a suitable spacing for the antennas for his/her need.

(4) With regard to claim 18, Acampora et al. also discloses, wherein the plurality of antennas consists of two antennas (pg. 13, col. 2, lines 20-23). It would have been obvious to one skilled in the art at the time of invention to incorporate the use of two antennas to incorporate selective diversity to maximize the signal to noise ratio at the receiver.

10. Claims 19-24, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ottersten et al. (US Patent 5,828,658) in view of Miyake et al. (US Patent 6,678,341 B1) as applied to claim 14 above, and further in view of Haartsen (US Patent 6,590,928 B1).

(1) With regard to claim 19, as noted above, Ottersten et al. in combination with Miyake et al. disclose all limitations of claim 14, above. They do not however teach wherein the communication circuit is arranged to form a piconet with the remote transmitter.

However, Haartsen discloses in Fig. 6a, wherein a communication circuit is arranged to form a piconet with a remote transmitter.

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Haartsen with the invention of Ottersten et al. in combination with Miyake et al. to provide a method of connecting devices wirelessly and making optimal use of allocated spectrum (col. 4, lines 15-17).

(2) With regard to claim 20, Haartsen also discloses in Fig. 12, wherein the remote transmitter is a slave device and wherein the communication circuit is a master device. It would

have been obvious to one skilled in the art at the time of invention to incorporate the use of the master and slave configuration to organize and control communications between devices on the network.

(3) With regard to claim 21, Haartsen also discloses wherein the first plurality of data signals comprises a plurality of data bits that identify the slave device to the master (col. 13, lines 60-66). It would have been obvious to one skilled in the art at the time of invention to use the first plurality of signals to inform the master as to what devices are connected to the network.

(4) With regard to claim 22, Haartsen also discloses wherein the remote transmitter is coupled to one of a cordless phone handset, a cell phone, a personal digital assistant, a digital camera, and a computer peripheral (col. 13, lines 64-65). It would have been obvious to one skilled in the art at the time of invention to use the remote transmitter to act as master to control communications between itself and also between the slave devices (cell phone, headset, digital camera).

(5) With regard to claim 23, Haartsen also discloses wherein the computer peripheral is one of a printer, signals comprises a scanner, a fax machine, and another computer (col. 13, lines 64-65). It would have been obvious to one skilled in the art to incorporate the mentioned devices in the network since they are common devices in use today.

(6) With regard to claim 24, Haartsen also discloses in Fig. 6b, wherein the signal processing circuit applies the second plurality of data signals to one of a cordless phone base station, a local area network access point, a computer, and a bridge to other networks (col. 14, lines 37-52). It would have been obvious to one skilled in the art at the time of invention to use the second plurality of signals to enable master devices to permit bridge configurations.

(7) With regard to claim 26, Haartsen also discloses wherein the first plurality of data signals includes an identification signal that identifies one of the communication circuit and the remote transmitter (col. 15, lines 57-64). It would have been obvious to one skilled in the art at the time of invention to use the first plurality of signals as an inquiry and identification message for each device connected a particular piconet in the network (col. 12, lines 41-44).

11. Claims 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyake et al. (US Patent 6,678,341 B1) in view of Acampora et al. (System Applications for Wireless Indoor Communications).

(1) With regard to claim 30, as noted above, Miyake et al. disclose all limitations of claim 29. Miyake et al. does not however explicitly each wherein the remote transmitter transmit each data signal of the second plurality of data signals from a plurality of antennas.

However, Acampora et al. discloses a communication circuit wherein the remote transmitter transmits each data signal of the second plurality of data signals from a plurality of antennas (pg. 13, col. 2, lines 31-36). Acampora et al discloses that multiple antennas could be used at the remote during selection diversity.

It would have been obvious to one skilled in the art at the time of invention to incorporate the teaching of Acampora et al. with the invention of Miyake et al. as a method of implementing antenna element and selection diversity at the remote.

(2) With regard to claim 31, Acampora et al. also discloses wherein each data signal of the second plurality of data signals is multiplied by a weighting coefficient corresponding to a respective antenna of the plurality of antennas, and wherein each said weighting coefficient has a

value corresponding to a received signal strength at the respective antenna (pg. 14, col. 2, lines 12-24). Acampora et al. discloses the use of adaptive transmission, which is well known method in the art (also disclosed by applicant, pg. 8, lines 8-16). It would have been obvious to one skilled in the art at the time of invention to incorporate the method to maximize the signal to noise ratio at the receiver.

(3) With regard to claim 32, Acampora et al. also discloses wherein each data signal of the second plurality of data signals is multiplied by a weighting coefficient corresponding to a respective antenna of the plurality of antennas, and wherein a first weighing coefficient corresponding to a first antenna of the plurality of antennas has a value of one and a second weighting coefficient corresponding to a second antenna of the plurality of antennas has a value of zero (pg. 13, col. 2, lines 9-17). Acampora et al. discloses the use of switched or selection diversity which is well known method in the art (also disclosed by applicant, pg. 8, lines 8-16). It would have been obvious to one skilled in the art at the time of invention to incorporate the method to maximize the signal to noise ratio at the receiver.

12. Claims 33-34, 37-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyake et al. (US Patent 6,678,341 B1) as applied to claim 29 above, and further in view of Haartsen (US Patent 6,590,928 B1).

(1) With regard to claim 33, as noted above, Miyake et al. disclose all limitations of claim 14, above. Miyake et al. does not however teach wherein the communication circuit is arranged to form a piconet with at least another communication circuit.

However, Haartsen discloses in Fig. 6a, wherein a communication circuit is arranged to form a piconet with at least another communication circuit.

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Haartsen with the invention of Miyake et al. to provide a method of connecting devices wirelessly and making optimal use of allocated spectrum (col. 4, lines 15-17).

(2) With regard to claim 34, Haartsen also discloses wherein the first plurality of data signals comprises an identification signal that identifies at least one communication circuit (col. 13, lines 60-66). It would have been obvious to one skilled in the art at the time of invention to incorporate the method to distinguish devices on the network.

(3) With regard to claim 37, Haartsen also discloses wherein the remote communication circuit is a master and wherein a slave receives the second plurality of data signals (col. 13, lines 60-66) as a method implementing an inquiry procedure. It would have been obvious to one skilled in the art at the time of invention to use the second plurality of signals as an inquiry and identification message for each device connected a particular piconet in the network (col. 12, lines 41-44).

(4) With regard to claim 38, Haartsen also discloses wherein the second plurality of data signals is produced by one of a cordless phone base station, a local area network access point, a computer, and a bridge to other networks (col. 14, lines 37-52). It would have been obvious to one skilled in the art at the time of invention to incorporate the method to use for connecting to a source unit to a bridge unit (col. 15, lines 28045).

(5) With regard to claim 39, Haartsen also discloses wherein the first plurality of data signals is produced by one of a cordless phone handset, a cell phone, a personal digital assistant,

a digital camera, and a computer peripheral (col. 13, lines 64-65). It would have been obvious to one skilled in the art at the time of invention to use the first plurality of signals to identify each of these slave devices and its class of service.

(6) With regard to claim 40, Haartsen also discloses wherein the computer peripheral is one of a printer, signals comprises a scanner, a fax machine, and another computer (col. 13, lines 64-65). It would have been obvious to one skilled in the art to incorporate the mentioned devices in the network since they are common devices in use today.

13. Claims 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Acampora et al. (System Applications for Wireless Indoor Communications) in view of Miyake et al. (US Patent 6,678,341 B1).

(1) With regard to claim 41, Acampora et al. discloses in Fig. 5, a method of communicating with a remote communication circuit, comprising the steps of: receiving a first data signal from a plurality of antennas on a respective frequency; calculating a respective weighting coefficient corresponding to each antenna of the plurality of antennas; multiplying a second data signal by the respective weighting coefficient of said each antenna, thereby producing a respective second weighted data signal corresponding to said each antenna; and transmitting each said respective second weighted data signal at the corresponding said each antenna of the plurality of antennas on the respective frequency (pg. 14, 2nd col. , lines 12-24). Both Acampora et al. and Applicant's Admitted Prior art (pg. 8, lines 8-16) inherently disclose **adaptive transmission**, which is well known method of adjusting transmission power of antennas.

Acampora et al. does not however disclose receiving the first data signal from a plurality of antennas on a respective frequency of a frequency hopping pattern and transmitting each said respective second weighted data signal at the corresponding said each antenna of the plurality of antennas on the respective frequency.

However, However, Miyake et al. discloses in Fig. 1, a transmitter (12) transmitting on a respective transmit frequency in a predetermined sequence of transmit frequencies and a receive circuit (14) receiving from a remote transmitter (18a, 18b) on the respective transmit frequency in the predetermined sequence (col. 5, lines 32-42).

It would have been obvious to one skilled in the art at the time of invention to apply the method of Miyake et al. to the invention of Acampora et al. as a method of providing a multi mode communication terminal capable of terminal to terminal communication without any infrastructure equipment (col. 2, lines 9-34).

(2) With regard to claim 42, though Acampora et al. does not explicitly disclose wherein the plurality of antennas are spaced apart by at least 2 centimeters and by no more than 15 centimeters, he does teach that with appropriately space antennas there is less probability of all multiple antennas all in a fade (pg. 13, col. 2, lines 2-8). It would be a design choice for one skilled in the art to choose a suitable spacing for the antennas for his/her need.

(3) With regard to claim 43, Acampora et al. also discloses, wherein the plurality of antennas consists of two antennas (pg. 13, col. 2, lines 20-23). It would have been obvious to one skilled in the art at the time of invention to use two antennas for diversity in order to maximize the signal to noise ratio at the receiver.

14. Claims 44 - 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Acampora et al. (System Applications for Wireless Indoor Communications) in view of Miyake et al. (US Patent 6,678,341 B1) as applied to claim 41 above, and further in view of Haartsen (US Patent 6,590,928 B1).

(1) With regard to claim 44, as noted above, Acampora et al. in combination with Miyake et al. disclose all limitations of claim 41, above. They do not however teach wherein the communication circuit is arranged to form a piconet with at least another communication circuit.

However, Haartsen discloses in Fig. 6a, wherein a communication circuit is arranged to form a piconet with at least another communication circuit.

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Haartsen with the invention of Acampora et al. in combination with Miyake et al. to provide a method of connecting devices wirelessly and making optimal use of allocated spectrum (col. 4, lines 15-17).

(2) With regard to claim 45, Miyake et al. also discloses wherein the remote communication circuit is a slave device (Fig. 1, element 10 (master), elements 18a, 18b (slaves). It would have been obvious to one skilled in the art at the time of invention to use the method to organize and control activity within the network.

(3) With regard to claim 46, Haartsen also discloses wherein the first data signal includes an identification signal that identifies the remote communication circuit (col. 13, lines 60-66). It would have been obvious to one skilled in the art at the time of invention to use the method of identifying itself and its function.

(4) With regard to claim 47, Haartsen also discloses wherein the remote communication circuit is one of a cordless phone handset, a cell phone, a personal digital assistant, a digital camera, and a computer peripheral (col. 13, lines 64-65). It would have been obvious to one skilled in the art at the time of invention to use the remote communication circuit to act as master to control communications between itself and also between the slave devices (cell phone, headset, digital camera).

(5) With regard to claim 48, Haartsen also discloses wherein the computer peripheral is one of a printer, signals comprises a scanner, a fax machine, and another computer (col. 13, lines 64-65). It would have been obvious to one skilled in the art to incorporate the mentioned devices in the network since they are common devices in use today.

(6) With regard to claim 49, Haartsen also discloses wherein the second plurality of data signals is produced by one of a cordless phone base station, a local area network access point, a computer, and a bridge to other networks (col. 14, lines 37-52). It would have been obvious to one skilled in the art at the time of invention to use the second plurality of signals to enable master devices to permit bridge configurations.

(7) With regard to claim 51, Acampora et al. discloses wherein the step of calculating comprises setting each said respective weighting coefficient corresponding to each antenna of the plurality of antennas to a value proportional to a value of the first data signal from each said antenna (pg. 14, col. 2, lines 12-24; also disclosed by applicant, pg. 8, lines 8-16).

(8) With regard to claim 52, Acampora et al. also discloses wherein the step of calculating comprises setting a first weighting coefficient corresponding to a first antenna of the plurality of antennas has a value of one and a second weighting coefficient corresponding to a

second antenna of the plurality of antennas has a value of zero (pg. 13, col. 2, lines 9-17). Acampora et al. discloses the use of switched or selection diversity which is well known method in the art (also disclosed by applicant, pg. 8, lines 8-16.) used for calculation of weight coefficients for transmission.

15. Claim 50 is rejected under 35 U.S.C. 103(a) as being unpatentable over Acampora et al. (System Applications for Wireless Indoor Communications) in view of Miyake et al. (US Patent 6,678,341 B1).and further in view of Ottersten et al. (US Patent 5,828,658).

As noted above, Acampora et al. in combination with Miyake et al. disclose all limitations of claim 41, above. They do not however disclose multiplying the first data signal by the respective weighting coefficient of each said antenna, thereby producing a respective first weighted data signal corresponding to said each antenna; and summing each said respective first weighted data signal corresponding to said each antenna, thereby producing a received signal.

However, Ottersten et al. also discloses multiplying the first data signal by the respective weighting coefficient of each said antenna, thereby producing a respective first weighted data signal corresponding to said each antenna; and summing each said respective first weighted data signal corresponding to said each antenna, thereby producing a received signal (col. 13, line 55 - col. 14, line 62). It would have been obvious to one skilled in the art at the time of invention to apply the method of Ottersten et al. to the invention of Acampora et al. in combination with Miyake et al. as a method improving signal quality in both the base station and remote.

Allowable Subject Matter

16. Claims 11-12, 27-28, 35-36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

17. The following is a statement of reasons for the indication of allowable subject matter: The instant application discloses a communication circuit designed with a signal processing circuit arranged to produce a first plurality of data signals and receive a second plurality of data signals. A search of prior art records has failed to disclose a communication circuit comprising a timing circuit coupled to receive an initial value corresponding to a predetermine time, the timing circuit arranged to produce a first control signal in response to receiving the identification signal within the predetermined time and arranged to produce a second control signal in response to not receiving the identification signal within the predetermined time as disclosed in claims 11 and 27. Nor does the prior teach producing a first control signal in response to receiving the identification signal received within a predetermine time; and producing a second control signal in response to not receiving the identification signal received within a predetermined time as disclosed in claim 35.

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a.) Daniel et al. Discloses in US Patent 6,061,023 Method and Apparatus for Producing Wide Null Antenna Patterns.

b.) Carloni et al. Discloses in US Patent 6,895,253 B1 Wireless Indoor Communications Using Antenna Arrays.

c.) Harrison discloses in US Patent 6,067,324 Method and system for Transmitting and Demodulating a Communications Signal Using an Adaptive Antenna Array In a Wireless Communication System.

d.) Nevo et al. discloses in US Patent 6,891,857 B1 Multiple Wireless Communication Protocol Methods and apparatuses Including Proactive Reduction of Interference.

e.) Saito discloses in US Patent 5,943,362 Spread Spectrum Radio Communication System.

f.) Cannon et al. discloses in US Patent 6,650,871 B1 Cordless RF Range Extension for Wireless Piconets.

g.) Hottinen et al. discloses in US Patent 6,584,302 B1 Method and Arrangement for Forming a Beam.

h.) Haartsen discloses in US 6,519,460 B1 Resource Management in Uncoordinated Frequency Hopping System.

i.) Siwaik et al. discloses in US Patent 5,446,922 Method and Apparatus for Switched and Diversity Reception of a Radio Signal.

j.) Rashid-Farrokhi et al. discloses in US Patent 6,400,780 B1 Space-Time Diversity for Wireless Systems.

k.) Schmidt et al. discloses in US 2002/0034263 A1 Wireless Communications.

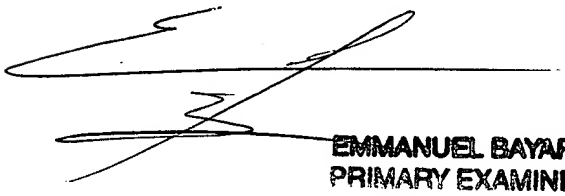
19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence B Williams whose telephone number is 571-272-3037. The examiner can normally be reached on Monday-Friday (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on 571-272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lawrence B. Williams

lbw
August 5, 2005



EMMANUEL BAYARD
PRIMARY EXAMINER